



“ We fitted internal solar reflective film on the windows and felt the reduction in heat instantly. ”



State of the estate

Did you know?

A poorly insulated building will lose one third of its heat through the walls, a quarter through the roof and the rest through the doors, windows and floors.

Energy efficiency should be a guiding principle in the design and construction of new buildings. Energy efficient design pays particular attention to insulation, ventilation and orientation. The selection of materials, finishes and construction techniques, as well as the equipment used to maintain environments within it, will dictate how much energy a building consumes over its whole life. Wise decisions taken in the construction cost phase can reduce the ongoing operational burden.

Many museum and gallery collections are housed in existing buildings; sometimes because the building is older it is seen as an appropriate place to showcase “old things”. But existing buildings can be very inefficient and their renovation and retrospective upgrade is an important consideration for energy efficient practice.

A building’s aspect - or how the building presents itself to the passage of the sun, the prevailing seasonal wind direction and how other buildings, open areas and plantings nearby impact on its presentation - are all important factors. Even with existing buildings that are locked into a well-developed neighbourhood, it may be possible to introduce shading or reflective plantings within the surrounding environment.

Passive design

You can employ passive measures to reduce the requirement for energy consumption, depending on your climate zone. The energy consumed by heating and cooling will be different between the temperate regions of southern Australia and the tropical regions in the north.

A north facing aspect will mean that the sun falls on the building throughout the day. In the winter, particularly in temperate regions, this solar gain can reduce heating costs, but during the summer months it may produce excessive heat. So look at the position of external shading and make sure it keeps out the high summer sun and lets in the lower winter sun or consider planting deciduous tree species. If the western 'afternoon sun' creates excessive heat, you can stop the heat entering by using external shades and internal reflective products.

Louvres are an effective method for providing natural ventilation. Louvres positioned low down near the floor will allow cool air to enter, and others located, close to the ceiling, will allow the warm air to leave which creates a cooling draught. Ventilation creates a more controllable and comfortable environment without requiring air conditioning. The use of ceiling fans will also minimise the need for energy-hungry air conditioning.

In most cases a well-sealed and appropriately insulated building is the most important thing to get right. Improve the insulation in the roof space, the walls and floors. There are many sorts of insulation to choose from and each one has an R-value rating. The higher the R-value number, the better the insulation's effectiveness.

Establishing a zoned approach to environmental control can be very effective in saving energy. Maybe your building could be zoned with the 'onion skin' principle in mind, where environments become increasingly controlled as one moves deeper into the building. This approach enables natural ventilation to be enjoyed in the outer, less controlled zones, and energy to be employed efficiently in the more sensitive inner collection display and storage zones.

Quick wins

- Seal up gaps
- Plant a tree

Long term wins

- Shade the building externally
- Install internal blinds or films
- Use reflective paint on the roof
- Insulate the roof
- Add more insulation to walls and floor
- Introduce natural ventilation
- Develop a zoned approach

More information

For further information on the Energy Efficiency Information Resources for Public Museums and Gallery sector project visit our website at www.clevercustodians.com.au or load the resource provided on the USB Drive.